Filing Date: April 27, 2000

Attorney Docket Number: 04329.2306

AMENDMENTS TO THE CLAIMS:

Please amend claims 8 and 12 as indicated below. This listing of claims will replace all

prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1.-7. (Canceled)

8. (Currently Amended) A method of manufacturing a semiconductor device

comprising the steps of:

forming an insulating film containing silicon and nitrogen on a semiconductor

substrate;

forming a film which must be processed and which contains silicon on the insulating

film;

processing the film which must be processed to cause a portion of the insulating film to

be exposed to the outside; and

lowering a surface of the semiconductor substrate under a part of the insulating film

relative to a surface of the semiconductor substrate under the film which is processed to cause

the portion of the insulating film to be exposed to the outside by applying a thermal oxidation

process to a semiconductor structure obtained owing to the above steps of an oxidation

process, the thermal oxidation process using an oxidizing gas containing one of ozone and

oxygen radicals, the oxygen radicals being generated by remote plasma oxidizing method or by

reacting a first gas containing oxygen and a second gas containing hydrogen, and a

-2-

Filing Date: April 27, 2000

Attorney Docket Number: 04329.2306

concentration of nitrogen of the part of the insulating film under an edge portion of the film

being decreased by the thermal oxidation process.

9. (Original) A method of manufacturing a semiconductor device according to claim 8,

wherein the insulating film is one of a silicon oxide film containing nitrogen and a silicon nitride

film.

10. (Original) A method of manufacturing a semiconductor device according to claim 8,

wherein the insulating film is a gate insulating film, and the film which must be processed is

processed to form a gate electrode.

11. (Original) A method of manufacturing a semiconductor device according to claim

8, wherein the insulating film is formed in such a manner that the concentration of nitrogen at

an interface of the insulating film with the semiconductor substrate realized before the

oxidation process is performed is 5×10^{13} cm⁻² or higher.

12. (Currently Amended) A method of manufacturing a semiconductor device

comprising the steps of:

forming an insulating film containing silicon and nitrogen on a semiconductor

substrate;

forming a film which must be processed and which contains silicon on the insulating

film;

-3-

Filing Date: April 27, 2000 Attorney Docket Number: 04329.2306

processing the film which must be processed such that to cause a portion of the insulating film is to be exposed to the outside;

lowering a surface of the semiconductor substrate under a part of the insulating film than relative to a surface of the semiconductor substrate under the film which is processed to cause the portion of the insulating film to be exposed to the outside by applying a thermal oxidation process to a semiconductor structure obtained in the above steps of an oxidation process, the thermal oxidation process using an oxidizing gas containing one of ozone and oxygen radicals, the oxygen radicals being generated by remote plasma oxidizing method or by reacting a first gas containing oxygen and a second gas containing hydrogen, and a concentration of nitrogen of the part of the insulating film under an edge portion of the film being decreased by the thermal oxidation process; and

subjecting the semiconductor structure subjected to the oxidizing oxidation process to at least one of a nitriding nitridation process and an additional oxidation process.

- 13. (Original) A method of manufacturing a semiconductor device according to claim 12, wherein the insulating film is one of a silicon oxide film containing nitrogen and silicon nitride film.
- 14. (Original) A method of manufacturing a semiconductor device according to claim 12, wherein the insulating film is a gate insulating film, and the film which must be processed is processed to form a gate electrode.

Filing Date: April 27, 2000

Attorney Docket Number: 04329.2306

15. (Original) A method of manufacturing a semiconductor device according to claim 12, wherein the insulating film is formed in such a manner that the concentration of nitrogen at an interface of the insulating film with the semiconductor substrate realized before the oxidation process is performed is not less than 5×10^{13} cm⁻².

16. (Withdrawn) A method of manufacturing a semiconductor device comprising the steps of:

forming an insulating film containing a silicon nitride film on a film which must be processed and which includes a silicon film;

processing the insulating film by using lithography and etching to form a pattern composed of the insulating film;

subjecting the pattern in an atmosphere containing one of oxygen radicals and ozone to convert the exposed surface of the silicon nitride film into a silicon oxide film;

fining the pattern by removing the silicon oxide film; and

processing the film which must be processed by transferring the fined pattern to the film which must be processed.

17. (Withdrawn) A method of manufacturing a semiconductor device according to claim 16, wherein

the insulating film is etched in such a manner that the surface of the film which must be processed is not exposed to the outside to convert the exposed surface of the silicon nitride film into a silicon oxide film, and then silicon oxide film is removed to form the pattern,

Filing Date: April 27, 2000

Attorney Docket Number: 04329.2306

a portion of the insulating film constituting the first pattern which has a small thickness is

removed to form the fine pattern, and

the fine pattern is used as a mask to etch the film which must be etched to transfer the

pattern to the film which must be processed.

18. (Withdrawn) A method of manufacturing a semiconductor device according to claim

16, wherein the insulating film further contains a silicon oxide film, and the silicon oxide film is

formed below the silicon nitride film.

19. (Withdrawn) A method of manufacturing a semiconductor device according to claim

16, wherein the film which must be processed is formed into a gate electrode.

20. (Previously Presented) A method of manufacturing a semiconductor device

according to claim 8, wherein the thermal oxidation process using the oxygen radicals is

performed at not lower than 900°C.

21. (Previously Presented) A method of manufacturing a semiconductor device

according to claim 12, wherein the thermal oxidation process using the oxygen radicals is

performed at not lower than 900°C.

-6-